



AN ISO 9001 : 2008 COMPANY & NABL ACCREDITED LABORATORY AS PER ISO/IEC 17025:2005

4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: TC-5548

CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2017-10-09-01 **Date:** 11-10-2017
Customer : Assistant Executive Engineer, Vidyaranyapura sub division, BBMP, Bangalore.
Address : Vidyaranyapura sub division, BBMP, Bangalore.
Project Name : Supply of water through tanker in Ward no.10 Doddabommasandra, Vidyaranyapura sub division.
Agency : Sri. K. V. Subbareddy, No.106B, Aswathnagara, R.M.V II stage, Bangalore-560094
Customer's Reference : BBMP/EE/BTP/WO/81/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 09-10-2017
Sample ID No : 2017-10-09-01/01
Sample Type : Birla Super 53grade
Reference to BIS codes : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,
 IS 4031 (Part 1,2 3,4,5, 6,11):1988
 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5
 IS 4031 Part 3, Determination of Soundness, Clause 5, Clause 6
 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5
 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5
 IS 4031 Part 11, DETERMINATION OF DENSITY , Clause 6
Date of test : 10-10-2017

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	2.95	—
2	Fineness by Air permeability method (m ² /kg, Min)	285.5	225m ² /kg, Min
3	Density (gm/cc)	3.2	—
4	Standard Consistency (%)	29.0%	Not specified
5	Initial Setting time	175 minutes	Not less than 30 minutes
6	Final Setting time	260 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	2mm	Not more than 10 mm

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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Handwritten signature and stamp: AEE (VRP) SD



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Handwritten signature of R. Karthik Rechan

R KARTHIK RECHAN

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CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2017-10-09-01 **Date:** 07-11-2017
Customer : Assistant Executive Engineer, Vidyaranyapura sub division, BBMP, Bangalore.
Address : Vidyaranyapura sub division, BBMP, Bangalore.
Project Name : Supply of water through tanker in Ward no.10 Doddabommasandra, Vidyaranyapura sub division.
Agency : Sri. K. V. Subbareddy, No.106B, Aswathnagara, R.M.V II stage, Bangalore-560094
Customer's Reference : BBMP/EE/BTP/WO/81/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 09-10-2017
Sample ID No : 2017-10-09-01/01
Sample Type : Birla Super 53grade
Reference to BIS codes : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,
IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test : 10-10-2017

Compressive Strength			
Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm ²	Not less than 27 N/mm ²
2	7 Days	39.5N/mm ²	Not less than 37 N/mm ²
3	28 Days	56.5N/mm ²	Not less than 53 N/mm ²

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: TC-5548

CP/TF/01

TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2017-10-09-01 **Date:** 12-10-2017

Customer : Assistant Executive Engineer, Vidyaranyapura sub division, BBMP, Bangalore.

Address : Vidyaranyapura sub division, BBMP, Bangalore.

Project Name : Supply of water through tanker in Ward no.10 Doddabommasandra, Vidyaranyapura sub division.

Agency : Sri. K. V. Subbareddy, No.106B, Aswathnagara, R.M.V II stage, Bangalore-560094

Customer's Reference : BBMP/EE/BTP/WO/81/2017-18

Source of Sample : Sample supplied by Agency

Sample condition : Satisfactory

Date of Receipt : 09-10-2017

Sample ID No : 2017-10-09-01/02(a)

Sample Type : 40mm down size coarse aggregate

Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2011
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties

Date of test : 09-10-2017

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	220	220	1.5	98.5	90-100
3	20 mm	5400	5620	37.5	62.5	30-70
4	10 mm	4600	10220	68.1	31.9	10-35
5	4.75 mm	4400	14620	97.5	2.5	0-5
6	Pan	380	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2017-10-09-01

Date: 12-10-2017

Sample ID No : 2017-10-09-01/02(a)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.5	
3	Specific Gravity	2.67	—
4	Bulk Density(Loose) (Kg/l)	1.48	—
5	Bulk Density(Compacted) (Kg/l)	1.52	—
6	Water Absorption(%)	0.23	—

Note:

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

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CP/TF/01

TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2017-10-09-01 **Date:** 12-10-2017
Customer : Assistant Executive Engineer, Vidyaranyapura sub division, BBMP, Bangalore.
Address : Vidyaranyapura sub division, BBMP, Bangalore.
Project Name : Supply of water through tanker in Ward no.10 Doddabommasandra, Vidyaranyapura sub division.
Agency : Sri. K. V. Subbareddy, No.106B, Aswathnagara, R.M.V II stage, Bangalore-560094
Customer Reference : BBMP/EE/BTP/WO/81/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 09-10-2017
Sample ID No : 2017-10-09-01/02(b)
Sample Type/ Size : 20mm down size coarse aggregate
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1,3,4) RA2011
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption
IS 2386 Part 4: Mechanical Properties
Date of test : 09-10-2017

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	245	245	4.9	95.1	90-100
3	10 mm	2560	2805	56.1	43.9	25-55
4	4.75 mm	2033	4838	96.8	3.2	0-10
5	Pan	162	5000	100	0	-

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2017-10-09-01

Date: 12-10-2017

Sample ID No : 2017-10-09-01/02(b)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	13.2	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.6	
3	Specific Gravity	2.66	—
4	Bulk Density(Loose) (Kg/l)	1.54	—
5	Bulk Density(Compacted) (Kg/l)	1.58	—
6	Water Absorption(%)	0.22	—
7	Aggregate crushing Value(%)	24.5	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	22.8	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: TC-5548

CP/TF/01

TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2017-10-09-01 Date: 12-10-2017

Customer : Assistant Executive Engineer, Vidyanarayapura sub division, BBMP, Bangalore.

Address : Vidyanarayapura sub division, BBMP, Bangalore.

Project Name : Supply of water through tanker in Ward no.10 Doddabommasandra, Vidyanarayapura sub division.

Agency : Sri. K. V. Subbareddy, No.106B, Aswathnagara, R.M.V II stage, Bangalore-560094

Customer's Reference : BBMP/EE/BTP/WO/81/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 09-10-2017

Sample ID No : 2017-10-09-01/03

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption

Date of test : 09-10-2017

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	84	84	8.4	91.6	90-100	90-100	90-100	95-100
3	2.36 mm	133	217	21.7	78.3	60-95	75-100	85-100	95-100
4	1.18 mm	156	373	37.3	62.7	30-70	55-90	75-100	90-100
5	600 micron	178	551	55.1	44.9	15-34	35-59	60-79	80-100
6	300 micron	185	736	73.6	26.4	5-20	8-30	12-40	15-50
7	150 micron	164	900	90.0	10.0	0-10	0-10	0-10	0-15
8	Pan	100	1000	100.0	0.0	---	---	---	---

Result : The tested Sample Conforms to Grading Zone II

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[Signature]

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2017-10-09-01

Date: 12-10-2017

Sample ID No : 2017-10-09-01/03

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.65	—
2	Specific Gravity	2.56	—
3	Material finer than 75 micron(%)	5.35	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID : CP-2017-10-09-01 Date: 13-10-2017
Customer : Assistant Executive Engineer, Vidyaranyapura sub division, BBMP, Bangalore.
Address : Vidyaranyapura sub division, BBMP, Bangalore.
Project Name : Supply of water through tanker in Ward no.10 Doddabommasandra, Vidyaranyapura sub division.
Agency : Sri. K. V. Subbareddy, No.106B, Aswathnagara, R.M.V II stage, Bangalore-560094
Customer's Reference : BBMP/EE/BTP/WO/81/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 09-10-2017
Sample ID No : 2017-10-09-01/04
Sample Type /Size : Precast Cover Slab
Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete
Date of test : 09/10/2017

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(mm)	(Sq.mm)	(KN)	(N/mm ²)	(N/mm ²)	(N/mm ²)
1	Cover Slab-1	75.43	100.47	1.116	4468	79.9	17.9	16.6	20.8
2	Cover Slab-2	75.51	100.49	1.122	4477	83.3	18.6	17.3	21.6
3	Cover Slab-3	75.62	100.50	1.118	4490	83.5	18.6	17.3	21.6

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Certificate No.: TC-5548

CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2017-10-21-02 Date: 23/10/2017

Customer : Assistant Executive Engineer, Vidyanayapura sub division, BBMP, Bangalore.

Address : Vidyanayapura sub division, BBMP, Bangalore.

Project Name : Supply of water through tanker in Ward no.10 Doddabommasandra, Vidyanayapura sub division.

Agency : Sri. K. V. Subbareddy, No.106B, Aswathnagara, R.M.V II stage, Bangalore-560094

Customer's Reference : BBMP/EE/BTP/WO/81/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 21-10-2017

Sample ID No : 2017-10-21-02/01

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 23/10/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm ²)	Average Compressive Strength (N/mm ²)
1	PCC	M15	16/10/2017	23/10/2017	150.56 X 150.21 X 150.19	22616	8.302	280.4	12.4	12.8
2	PCC	M15	16/10/2017	23/10/2017	150.24 X 150.23 X 150.20	22571	8.320	295.7	13.1	
3	PCC	M15	16/10/2017	23/10/2017	150.19 X 150.18 X 150.20	22556	8.268	288.7	12.8	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2017-10-21-02 **Date:** 13/11/2017
Customer : Assistant Executive Engineer, Vidyaranyapura sub division, BBMP, Bangalore.
Address : Vidyaranyapura sub division, BBMP, Bangalore.
Project Name : Supply of water through tanker in Ward no.10 Doddabommasandra, Vidyaranyapura sub division.
Agency : Sri. K. V. Subbareddy, No.106B, Aswathnagara, R.M.V II stage, Bangalore-560094
Customer's Reference : BBMP/EE/BTP/WO/81/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 21-10-2017
Sample ID No : 2017-10-21-02/02
Customer ID : PCC
Sample Type /Size : 150X150X150 mm
Sample grade/Age : M15 / 28 Days Compressive Strength
Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 13/11/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm ²)	Average Compressive Strength (N/mm ²)
1	PCC	M15	16/10/2017	13/11/2017	150.18 X 150.19 X 150.23	22556	8.298	388.0	17.2	17.7
2	PCC	M15	16/10/2017	13/11/2017	150.22 X 150.21 X 150.20	22565	8.321	399.4	17.7	
3	PCC	M15	16/10/2017	13/11/2017	150.18 X 150.11 X 150.23	22544	8.278	408.0	18.1	

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